

These are electronic appendices to the paper by Thomas *et al.* 2002 Eye size in birds and the timing of song at dawn. *Proc. R. Soc. Lond. B* **269**, 831-837.

Electronic appendices are refereed with the text. However, no attempt has been made to impose a uniform editorial style on the electronic appendices.

**Electronic Appendix A.** Eye size and body mass of 57 species of passerine birds. Eye size for all species measured during this study is presented, because we are not aware any published data for this morphometric ( $n$  is the number of individuals that were measured). The sites at which the timing of song at dawn was measured are also shown (see Methods).

species	eye size (mm)		body mass (g)		sites where	
	mean	s.d.	mean	s.d.	$n$	song was measured
<i>Acrocephalus schoenobaenus</i>	3.66	0.064	10.65	0.73	12	
<i>Acrocephalus scirpaceus</i>	3.76	0.084	11.27	1.32	18	1
<i>Aegithalos caudatus</i>	3.36	0.123	7.49	0.31	12	
<i>Alauda arvensis</i>	4.77	0.058	35.00	5.19	3	1,2,7
<i>Anthus pratensis</i>	3.83	0.091	18.06	1.83	5	
<i>Anthus trivialis</i>	4.10	-	22.50	-	1	2
<i>Carduelis cannabina</i>	3.18	0.029	18.15	0.92	3	1,2
<i>Carduelis carduelis</i>	3.11	0.117	13.34	1.57	21	1,2,4,6
<i>Carduelis chloris</i>	3.76	0.214	24.24	3.37	14	1,4,6
<i>Certhia brachydactyla</i>	3.27	0.144	8.00	0.26	3	

<i>Certhia familiaris</i>	3.60	0.141	9.35	0.35	2	1,2
<i>Cisticola juncidis</i>	3.03	0.177	8.15	0.35	2	6
<i>Coccothraustes coccothraustes</i>	5.20	0	48.25	1.91	2	
<i>Corvus frugilegus</i>	8.57	0.321	430.00	35.42	3	
<i>Cyanopica cyana</i>	6.25	-	61.00	-	1	
<i>Emberiza citrinella</i>	4.15	-	26.60	-	1	5
<i>Emberiza schoeniculus</i>	3.80	0.141	19.80	0.99	2	1
<i>Erithacus rubecula</i>	4.77	0.252	19.20	2.16	30	1,2,3,4,5,6
<i>Estrilda astrild</i>	2.70	0.100	8.97	0.71	3	
<i>Ficedula hypoleuca</i>	4.00	-	12.30	-	1	3
<i>Fringilla coelebs</i>	3.78	0.181	19.26	2.22	10	1,2,3,4,5,6,7
<i>Galerida cristata</i>	4.70	-	32.60	-	1	6
<i>Hippolais polyglotta</i>	3.10	0.141	10.60	0.85	2	
<i>Hirundo rustica</i>	4.50	0.144	18.34	1.47	24	1,6
<i>Lanius collurio</i>	5.30	-	32.00	-	1	
<i>Lanius senator</i>	5.39	0.103	30.55	1.97	4	
<i>Locustella naevia</i>	3.70	-	13.20	-	1	
<i>Luscinia megarhynchos</i> <sup>l</sup>	4.75	-	19.40	-	1	5
<i>Miliaria calandra</i>	4.70	0	44.30	8.91	2	6
<i>Motacilla cinerea</i>	4.00	-	15.40	-	1	
<i>Parus ater</i>	3.45	-	8.50	-	1	2,3,7
<i>Parus caeruleus</i>	3.27	0.252	10.57	1.97	18	1,3,4,5
<i>Parus major</i>	4.09	0.213	18.17	1.87	10	1,2,3,4,5,6,7
<i>Parus palustris</i>	3.20	-	10.50	-	1	
<i>Passer domesticus</i>	3.78	0.172	28.21	1.51	9	1,6
<i>Phoenicurus phoenicurus</i>	4.50	-	14.70	-	1	2,3
<i>Phylloscopus bonelli</i>	2.90	-	11.60	-	1	7
<i>Phylloscopus collybita</i>	2.94	0.155	6.96	0.65	12	1,4,5,6,7
<i>Phylloscopus trochilus</i>	3.13	0.136	8.40	0.89	20	1,2,3

<i>Pica pica</i>	6.63	0.106	185.50	6.36	2	
<i>Prunella modularis</i>	4.06	0.256	22.70	1.92	13	1,2,4
<i>Pyrrhula pyrrhula</i>	3.70	-	22.70	-	1	
<i>Regulus regulus</i>	2.96	0.168	5.29	0.19	8	1,2
<i>Riparia riparia</i>	4.00	0.155	14.38	0.84	12	
<i>Saxicola rubetra</i>	4.55	0.710	16.60	1.45	4	7
<i>Saxicola torquata</i>	4.75	-	16.30	-	1	2
<i>Serinus serinus</i>	2.81	0.160	11.17	1.16	9	6
<i>Sitta europaea</i>	4.30	0.283	21.60	0.99	2	
<i>Sturnus vulgaris</i>	5.00	-	80.00	-	1	1
<i>Sylvia atricapilla</i>	3.95	0.239	17.43	1.62	15	1,2,3,4,7
<i>Sylvia borin</i>	4.13	0.148	18.42	2.55	9	1
<i>Sylvia communis</i>	3.73	0.154	14.58	1.69	14	5
<i>Sylvia curruca</i>	3.28	0.222	11.53	1.27	4	
<i>Sylvia melanocephala</i>	3.64	0.162	11.17	0.89	28	6
<i>Troglodytes troglodytes</i>	3.41	0.246	9.97	1.00	22	1,2,3,4,5,7
<i>Turdus merula</i>	6.61	0.213	90.58	11.02	20	1,2,3,4,5,6,7
<i>Turdus philomelos</i>	6.43	0.204	77.85	6.75	12	1,2,3,4,5,6

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1 European nightingales often sing throughout the night, but sing only during the day in some circumstances (Thomas 1997). In our analyses we used only the nightingales at site 5 that were known to be singing diurnally.

#### REFERENCE:

Thomas, R. J. 1997 *The functions of daily singing routines in birds*. Unpubl. D.Phil. thesis, University of Sussex.

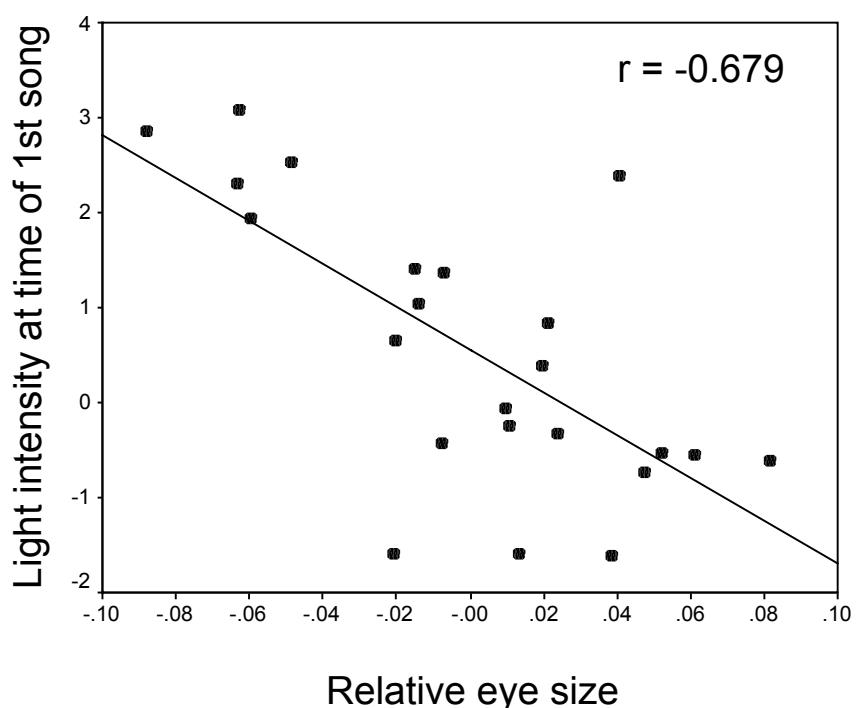
**Electronic Appendix B.** Associations between eye size, body mass and the timing of first song using species-level least-squares regression analyses (see Methods).

model	explanatory variable(s)	correlation coefficient	F(d.f.)	p	Eta <sup>2</sup>
<b>dependent variable: light intensity at time of first song</b>					
<b>site 1</b>					
model 1	eye size	-16.631	5.836 (1,21)	0.025	0.217
model 2	eye size	-51.939	18.088 (1,20)	<0.001	0.475
	body mass	11.785	10.682 (1,20)	0.004	0.348
<b>site 2</b>					
model 1	eye size	-19.307	12.616 (1,16)	0.003	0.441
model 2	eye size	-44.004	21.726 (1,15)	<0.001	0.592
	body mass	8.975	8.806 (1,15)	0.010	0.370
<b>dependent variable: time of first song</b>					
model 1	eye size	-140.834	11.457 (1,36)	0.002	0.241
model 2	eye size	-363.153	36.132 (1,35)	<0.001	0.508
	body mass	84.111	19.689 (1,35)	<0.001	0.360
<b>dependent variable: adjusted time of first song</b>					
model 1	eye size	-138.467	12.181 (1,36)	0.001	0.253
model 2	eye size	-356.046	39.383 (1,35)	<0.001	0.529
	body mass	82.317	21.384 (1,35)	<0.001	0.379

### **Electronic Appendix C.**

Figure 1. Species-level relationships between eye size and light intensity at first song at dawn in songbirds. Relative eye size is the residual from the contrasts in least-squares regression of  $\log_{10}(\text{eye size})$  on  $\log_{10}(\text{body mass})$ . We use residuals for illustrative purposes only, since the analyses are based on actual explanatory variables rather than residuals (see Methods).

#### **a) Site 1**



**b) Site 2**

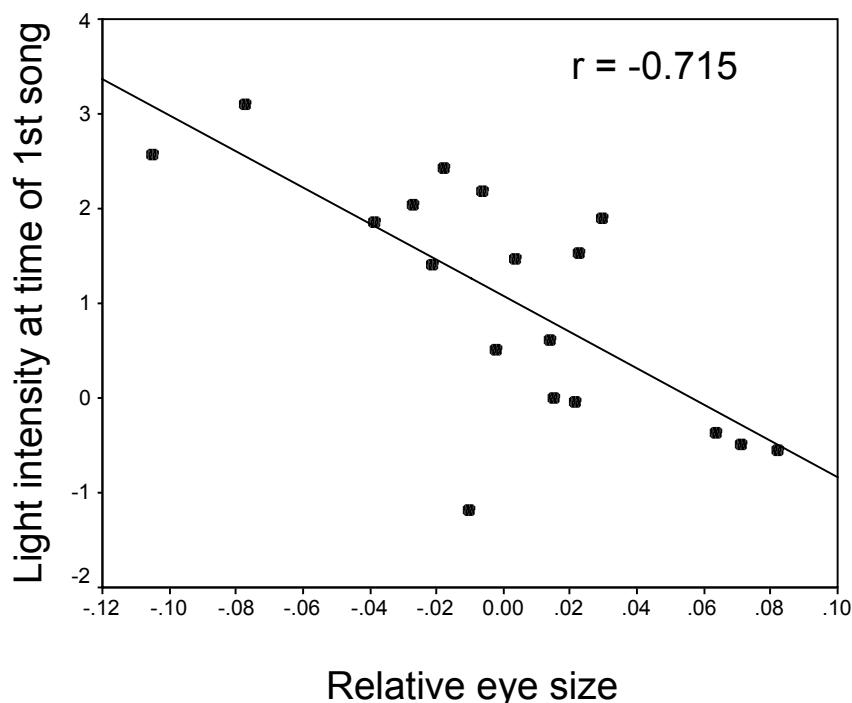
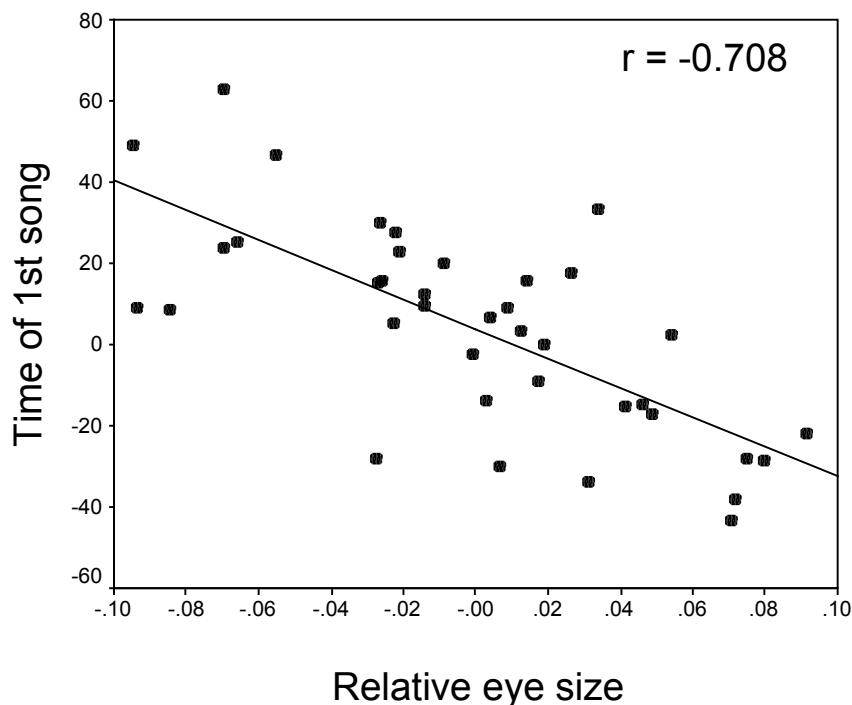


Figure 2. Species-level relationships between relative eye size and the timing of dawn song (see Methods and Figure 1).

**a) Time of first song**



**b) Adjusted time of first song**

